

Remarks

A. Status of the Claims

Claims 39 and 76 are revised to state the range of the pressure exerted on the mold part as being “from 10 kPa to 350 kPa” and that such pressure “is maintained at least up to the gelling of the liquid coating composition layer.” These claims are also revised to define the thickness of the single monolayer coating being “less than 5 μm .” Non-limiting support for such revisions can be found in original claims 9 and 22 and in the specification at page 8, lines 20-23.

Claim 58 is revised to change its dependency to claim 39.

Claim 59 is revised to state that the single monolayer coating has a thickness of “1 to less than 5 μm .” Non-limiting support for this revision can be found in original claim 22, and in the specification at page 6, lines 29-32.

Claims 51, 60-62, and 82-83 are cancelled.

Claims 84-87 are added, non-limiting support for which can be found in original claims 17 and 19 and in the specification at page 5, lines 1-8 and page 7, lines 5-7.

B. Obviousness Rejections

1. Independent claims 39 and 76

Independent claims 39 and 76, prior to the revisions made above, were rejected under 35 U.S.C. § 103(a) for allegedly being obvious over U.S. Patent 5,512,371 (“Gupta”) in view of U.S. Patent 4,417,790 (“Dawson”) and alternatively in further view of U.S. Patent 6,562,466 (“Jiang”). Additional obvious rejections were also presented against dependent claims. However, for brevity’s sake, Applicant will focus the current arguments on independent claims 39 and 76.

Applicant respectfully disagrees with the current obvious rejections. However, in an effort to further the prosecution, independent claims 39 and 76 are further revised in a manner noted above. Applicant submits that these claims are patentable over the cited art for at least the following reasons.

Applicant previously discussed the scope and content of Gupta and Jiang in the response filed July 15, 2011. These discussions are incorporated into the present response by reference. The Examiner currently relies on Dawson in the following context:

Applicants argue that while Jiang allows for the elimination of a polishing step of the lens, it does so only in the context of depositing at least two layers onto the surface of the unpolished lens.

Examiner has applied Dawson which teaches the application of a single coating layer for the purpose of obviating the need to perform polishing steps.

Action at page 11.

The combination of Dawson with Gupta is not an obvious combination. To begin, the following passage from Applicant's own specification confirms this by describing Dawson in the following manner:

Although the resulting coating lens becomes transparent using such a coating thickness (...), the fining lines on the lens main face, *i.e.* the lines resulting from the fine grinding processing step, **remain visible** in particular when the coated lens is illuminated by an arc lamp.

Specification at page 2, lines 11-15 (emphasis added). As explained in detail below, this evidence confirms that Dawson actually teaches away from Applicant's claimed process, which produces "a coated optical article free of visible fining lines."

Dawson describes a process of forming a coating at the surface of an ophthalmic lens which leads to satisfactory optical properties despite suppression of the traditional steps of fine grinding and polishing. This process includes applying a liquid curable coating composition

(col. 2, lines 26-28) onto a lens surface that has been ground, which suppresses abrasive marks formed by the tools employed and diffraction phenomenon. It is taught that a coating thickness of around 10 times the surface roughness is sufficient:

By such means, the surface roughness of the machined lens surface, whether glass or plastic, may be smoothly covered with the coating material to eliminate the effect of light scattering and afford optimum transparency. [col. 1, lines 55-59]

More specifically, it is an object of the invention to provide optically clear finishes on machined lens surfaces without the need for lens polishing operations. [col. 1, lines 40-42]

To this end, the present invention eliminates the traditional final steps of fine grinding and polishing and, instead, dips, sprays, spin coats, doctors or otherwise applies an optically clear coating 14 to surface 12. [col. 2, lines 21-25]

It has been determined that a thickness of coating 14 or 14' (FIGS. 2 and 3) of approximately ten times the depth of machined surface roughness will produce a finish of optical quality. [col. 3, L. 43-46]

When considering Dawson, it is clear that the technical problem addressed by Applicant in the present invention is that when a coating is applied according to a method described in Dawson (namely a spin coating technique, or a flow coating technique) on a rough surface even after surfacing and fine grinding, there are still fining marks visible at the arc lamp, even if the coating thickness is considerably increased for the purpose of covering the fining lines. Indeed, this is clearly demonstrated in Applicant's specification at Example 1 versus comparative Example 1 (spin coating) and Example 3 versus comparative Example 4 (flow coating) where the same coating is used. The following Table 1 from Applicant's specification is provided below for the Examiner's convenience:

TABLE 1

Ex.	Lens materials	Fining process	Surface roughness (R _q)	Haze before coating	Coating refractive index n _D ²⁵	Coating process	Thickness of coating	Haze after coating	Fining mark in arc lamp
Ex. 1	CR-39	V-95 + 15 μ m fining (2 min)	0.3787 [μ m]	89.8	1.518	Press coating	~5 μ m	0.37	No
Ex. 2	CR-39	V-95 + 15 μ m fining (2 min)	0.3943 [μ m]	89.8	1.532	Press coating	~5 μ m	1.50	No
Com. 1	CR-39	V-95 + 15 μ m fining (2 min)	0.3758 [μ m]	89.8	1.518	Spin coating	~25 μ m	0.35	Yes
Com. 2	CR-39	V-95 + 15 μ m fining (2 min)	0.3831 [μ m]	89.8	1.57	Press coating	6.79	Yes
Ex. 3	PC	V-95 + 15 μ m fining (2 min)	0.2089 [μ m]	83.1	1.57	Press coating	1.17	No
Com. 3	PC	V-95 + 15 μ m fining (2 min)	0.2181 [μ m]	83.1	1.518	Spin coating	2.40	Yes
Com. 4	PC	V-95 + 15 μ m fining (2 min)	0.2163 [μ m]	83.1	1.57	Flow coating	>25 μ m	1.15	Yes

As illustrated above in Table 1 of Applicant's specification, Example 1 and comparative Example 1 are directly comparable because only the deposition process of the coating differs between the two examples (except for a very slight variation of R_q which is insignificant). Even if the thickness of the coating in comparative Example 1 is more than 60 times higher than the roughness (which is actually the roughness of a surface which has been subjected to grinding and fine grinding), fining marks are visible at the Arc lamp.

Given that the Dawson process does not work in a manner claimed by Applicant (as demonstrated by comparative Example 1 above), there is no apparent reason/motivation for combining Dawson with either Jiang and/or Gupta in hopes of achieving the results obtained by Applicant's claimed process. Rather, a person of ordinary skill in the art would not have attempted to apply the teachings of Dawson in the process of Gupta because that there was no reasonable expectation of success that such combination would work—*i.e.*, visible lines would have resulted in view of the evidence of record and discussed in Applicant's own specification.

Indeed, Dawson's process fails due to the use of spin coating. However, the skilled person cannot reach this conclusion by an objective reading of the cited art. Rather, Applicant surprisingly discovered that applying a single monolayer coating through the claimed "press coating" process effectively suppresses visible fining lines.

Further, in Example 6 of the Applicant's specification, the thickness of the final coating is only 1 to 2 microns for a roughness of 0.3787 microns and there are no fining marks. Surprisingly, when using Applicant's claimed coating process, fining marks are suppressed even if the coating is in a low thickness range ($< 5 \mu\text{m}$).

Further, and when considering Gupta's disclosure, there is no clear indication of what would be the resulting thickness of the cured attached portion in Gupta. It is submitted that the thickness would be rather high and outside of Applicant's claimed range. This reasoning is supported by the following passage from Gupta, which describes the use of minimal pressure for a particular purpose of simply squeezing out excess resin material:

The resin mixture is then dispensed into the mold. A lens preform made from polycarbonate of bisphenol A is placed on top of the resin-filled mold and slight pressure is applied to squeeze out excess resin material until a carrier layer of sufficient thickness is obtained. The weight of the lens preform and capillary action of the resin material are sufficient to hold the assembly together without use of a conventional optical gasket.

Gupta at col. 8, lines 6-14. This technique described in Gupta is of a kind that can be defined as an overmolding system. Indeed, Jiang, the tertiary reference used by the Examiner to support the obvious rejection, discusses Gupta in this context at column 2, lines 4-19.

In Applicant's claimed process, by comparison, the pressure is maintained during the curing operation of the coating, which is believed (without wishing to be bound by any theory) to allow to fill up the grooves and follow the shrinking of the curing coating if any. This is a definitive and clear advantage of the process as claimed to operate at low coating thicknesses.

Therefore, any argument that a person of ordinary skill in the art would modify the process of Gupta for avoiding deformation of the lens is not relevant.

Indeed, deformation of the lens is caused if too much pressure is applied during transfer. As such, it is clear that, using no pressure or insignificant pressure (due to the weight of the lens), Gupta will have no deformation problems to solve and consequently no reason to apply the teaching of Jiang which defines pressure ranges where there would be no deformation of the lens.

The main purpose of Jiang is first to make a coated lens, second to avoid deformation of the lens on which the transfer is made. It was never said that the technique of Gupta created deformation of the preform.

2. Dependent claim 58

Dependent claim 58 is further patentable. This claim recites:

The process of claim 39, wherein said main face of the optical article has a surface roughness S_q of about $1.0\text{ }\mu\text{m}$.

As exhibited in the above claim, the ratio cured coating thickness/initial surface roughness is < 5 . This ratio is in contrast to the ratio suggested in Dawson at column 3, lines 43-60. Therefore, Dawson further teaches away from the invention in claim 58.

3. Piecemeal Examination

Applicant respectfully submits that it appears the present application is being subjected to piecemeal examination. The current office action is the fifth action, in which Applicant previously submitted two Request for Continued Examinations. The first office action was issued over three years ago on February 11, 2009. The second office action was issued November 5, 2009. The third office action was issued October 29, 2010. The fourth office action was issued April 15, 2011. The fifth office action, which is the present Action, was issued

October 11, 2011. Despite all of these office actions for the past three years, the Examiner is now using for the first time the Dawson reference to support the primary obvious rejection. This is particularly frustrating in at least two respects. First, Applicant's application specifically distinguishes Dawson from the present claims (see above and page 2, lines 5-15 of Applicant's specification). Second, Dawson was submitted in an Information Disclosure Statement filed November 5, 2007.

Thus, the Patent Office has known about Dawson well-before substantive examination even started in this case. To use Dawson as a secondary reference at this stage during prosecution for the first time seems to be, at least in some respect, piecemeal examination. Further, and as explained above and by Applicant's own specification, Dawson actually teaches the presence of fining lines, which is in opposite to Applicant's claimed process. Therefore, the use of Dawson at this late stage seems inappropriate.

C. Conclusion

Applicant requests that all of the obviousness rejections be withdrawn and that this case proceed to allowance. The Examiner is invited to contact the undersigned Attorney at 512-536-3020 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,
/Michael R. Krawzsenek/
Michael R. Krawzsenek
Reg. No. 51,898
Attorney for Applicants

FULBRIGHT & JAWORSKI L.L.P.
98 San Jacinto Boulevard, Suite 1100
Austin, Texas 78701
512.536.3020 (voice)
512.536.4598 (fax)
Date: February 13, 2012